

WHAT IS CLAIMED IS

1. A method for background suppression and color adjustment, comprising the steps of:

passing an input signal through independent lookup tables, each operating on separate color components for outputting an adjusted pixel value;

determining if the luminance of the adjusted pixel value is at one of its two extremes

if adjusted pixel value is at an extreme value then determine the amount of color in the adjusted pixel versus a neutral pixel,

if the amount of color is larger than a predetermined threshold then change the luminance value away from its extreme value

if the amount of color is small than a predetermined threshold set the color of the pixel to zero; and

if the luminance value is not an extreme, no change is made.

2. The method according to Claim 1 where the look-up table content is modified automatically based on the analysis of the input image.

3. The method according to Claim 2 where the analysis is based on collecting certain input image statistics, including luminance and dependent chromina histogram of the input image.

4. The method according to Claim 2 where the white point, representing the brightest luminance area in said input image, is determined based on the luminance histogram content and applied to modify the look-up table content to lighten the output image.

5. The method according to Claim 2 where the black point, representing the darkest luminance area in the input image, is determined based on the luminance histogram content and applied to modify the look-up table content to darken the output image.

6. The method according to Claim 2 where the luminance histogram values from the analysis is further used for modifying the look-up table content to enhance the input image, such as increasing the contrast of brightening the shadow detail of the input image.

7. The method according to Claim 2 where the additional dependence chrominance histogram is used for determining the neutrality of individual pixels or local area, or the entire input image, in order to detect whether the input image or any part of it is color or gray scale.

8. The method according to Claim 7 where the neutrality information is further applied to eliminate any residual colors in the output image or any part of it by forcing the output chrominance channel to zero.

9. The method according to Claim 7 where the neutrality information is further applied to preserve the color integrity of the output image or any part of it by forcing the output chroma channels away from zero.

10. A system for background suppression and color adjustment, comprising:  
means for passing an input signal through independent lookup tables, each operating on separate color components for outputting an adjusted pixel value;  
means for determining if the luminance of the adjusted pixel value is at one of its two extremes

if adjusted pixel value is at an extreme value then determine the amount of color in the adjusted pixel versus a neutral pixel,

if the amount of color is larger than a predetermined threshold then change the luminance value away from its extreme value

if the amount of color is small than a predetermined threshold set the color of the pixel to zero; and

if the luminance value is not an extreme, no change is made.

11. The system according to Claim 10 where the look-up table content is modified automatically based on the analysis of the input image.

12. The system according to Claim 11 where the analysis is based on collecting certain input image statistics, including luminance and dependent chromina histogram of the input image.

13. The system according to Claim 11 where the white point, representing the brightest luminance area in said input image, is determined based on the luminance histogram content and applied to modify the look-up table content to lighten the output image.

14. The system according to Claim 11 where the black point, representing the darkest luminance area in the input image, is determined based on the luminance histogram content and applied to modify the look-up table content to darken the output image.

15. The system according to Claim 11 where the luminance histogram values from the analysis is further used for modifying the look-up table content to enhance the input image, such as increasing the contrast of brightening the shadow detail of the input image.

16. The system according to Claim 11 where the additional dependence chrominance histogram is used for determining the neutrality of individual pixels or local area, or the entire input image, in order to detect whether the input image or any part of it is color or gray scale.

17. The system according to Claim 16 where the neutrality information is further applied to eliminate any residual colors in the output image or any part of it by forcing the output chrominance channel to zero.

18. The method according to Claim 16 where the neutrality information is further applied to preserve the color integrity of the output image or any part of it by forcing the output chroma channels away from zero.

19. A method for background suppression and color adjustment, comprising the steps of:

- passing an input signal through independent lookup tables, each operating on separate color components for outputting an adjusted pixel value;

- determining if the luminance of the adjusted pixel value is at one of its two extremes

- if adjusted pixel value is at an extreme value then determine the amount of color in the adjusted pixel versus a neutral pixel,

- if the amount of color is larger than a predetermined threshold then change the luminance value away from its extreme value

- if the amount of color is small than a predetermined threshold set the color of the pixel to zero; and

- if the luminance value is not an extreme, no change is made and the look-up table content is modified automatically based on the analysis of the input image.

20. The method according to Claim 19 where the analysis is based on collecting certain input image statistics, including luminance and dependent chromina histogram of the input image.